

# ARNOLD & PORTER LLP

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March 26, 2004

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Re: U.S. Patent Application No. 10/735,242

Filed: December 12, 2003

Title: **Nucleic Acid Sequences Encoding  $\beta$ -Ketoacyl-ACP Synthase  
and Uses Thereof**

Applicant: Katayoon DEHESH

A&P Ref. No.: 16518.134

Sir:

The following documents are forwarded herewith for appropriate action by the U.S. Patent and Trademark Office (USPTO):

1. Information Disclosure Statement;
2. Form PTO-1449 (6 pages) with 50 accompanying references; and
3. Return postcard.

Please stamp the postcard with the filing date of these documents and return it to our courier.

In the event that extensions of time are necessary to prevent abandonment of this patent application, then such extensions of time are hereby petitioned. Applicants do not believe any fees are due in conjunction with this filing. However, if any fees under 37 C.F.R. §§ 1.16 or 1.17 are required in the present application, including any fees for extensions of time, then the Commissioner is hereby authorized to charge such fees to Arnold & Porter Deposit Account No. 50-2387, referencing matter number 16518.134. A duplicate copy of this letter is enclosed.

Respectfully submitted,

A handwritten signature in black ink that reads "Rachel L. Adams".

Rachel L. Adams (Reg. Attorney No. 54,660)  
David R. Marsh (Reg. Attorney No. 41,408)

Attachments

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Katayoon DEHESH

Appln. No.: 10/735,242

Filed: December 12, 2003



Group Art Unit: To be Assigned

Examiner: To be Assigned

Atty. Docket: 16518.134

For: **Nucleic Acid Sequences Encoding  
β-Ketoacyl-ACP Synthase and Uses  
Thereof**

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

The attention of the Examiner is invited to the documents listed on the attached Form PTO-1449. Copies of the listed documents are submitted herewith.

It is respectfully requested that the information above be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

**CERTIFICATION AND/OR FEE**

Because this Information Disclosure Statement is being submitted prior to issuance of the first action on the merits of the above-captioned application, no certification or fee is required.

Respectfully submitted,

Rachel L. Adams (Reg. Attorney No. 54,660)  
David R. Marsh (Reg. Attorney No. 41,408)

Date: March 26, 2004

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FORM PTO-1449  
INFORMATION DISCLOSURE STATEMENTOIP  
MAR 26 2004  
PATENT & TRADEMARK OFFICE  
U.S. GOVERNMENT

ATTY. DOCKET NO.

16518.134

APPLICATION NO.

10/735,242

APPLICANTS

Katayoon DEHESH

FILING DATE

December 12, 2003

GROUP

To Be Assigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA1	5,585,535	12/17/96	Fehr <i>et al.</i>			
	AB1						
	AC1						
	AD1						
	AE1						

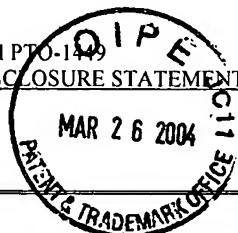
## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AF1	92/03564	03/1992	PCT			<input checked="" type="checkbox"/> Yes No
	AG1	92/20236	11/1992	PCT			<input checked="" type="checkbox"/> Yes No
	AH1	93/10240	05/1993	PCT			<input checked="" type="checkbox"/> Yes No
	AJ1	94/10189	05/1994	PCT			<input checked="" type="checkbox"/> Yes No
	AJ1	94/10288	05/1994	PCT			<input checked="" type="checkbox"/> Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AK	1	Clough <i>et al.</i> , "Purification and Characterization of 3-Ketoacyl-Acyl Carrier Protein Synthase III from Spinach", <i>The Journal of Biological Chemistry</i> , 267(29):20992-20998 (1992)
	AL	1	Dehesh <i>et al.</i> , Database EMBL, Accession No. AX073486 (XP002213168) (2001)
	AM	1	Dehesh <i>et al.</i> , "GT-2: A Transcription Factor with Twin Autonomous DNA-Binding Domains of Closely Related but Different Target Sequence Specificity", <i>The EMBO Journal</i> , 11(11):4131-4144 (1992)
	AN	1	Dehesh, "KAS IV: 3-Ketoacyl-ACP Synthase from <i>Cuphea sp.</i> is a Medium Chain Specific Condensing Enzyme", <i>The Plant Journal</i> , 15(3):383-390 (1998)
	AO	1	Dehesh <i>et al.</i> , "Production of High Levels of 8:0 and 10:0 Fatty Acids in Transgenic Canola by Overexpression of CH FatB2, a Thioesterase cDNA from <i>Cuphea hookerianana</i> ", <i>The Plant Journal</i> , 9(2):167-172 (1996)
	AP	1	Dehesh <i>et al.</i> , "Two Novel Thioesterases are Key Determinants of the Bimodal Distribution of Acyl Chain Length of <i>Cuphea palustris</i> Seed Oil", <i>Plant Physiol.</i> , 110:203-210 (1996)

EXAMINER	DATE CONSIDERED
<b>EXAMINER:</b> Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.	

FORM PTO-1449  
INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.	APPLICATION NO.
16518.134	10/735,242
APPLICANTS	
Katayoon DEHESH	
FILING DATE	GROUP
December 12, 2003	To Be Assigned

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA2						
	AB2						
	AC2						
	AD2						
	AE2						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AF2	95/06740	03/1995	PCT			<input checked="" type="checkbox"/> (abstract only) Yes No
	AG2	95/15387	06/1995	PCT			<input checked="" type="checkbox"/> Yes No
	AH2	96/23892	08/1996	PCT			<input checked="" type="checkbox"/> Yes No
	AI2	98/46766	10/1998	PCT			<input checked="" type="checkbox"/> Yes No
	AJ2	0 969 014	01/2000	EPO			<input checked="" type="checkbox"/> Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

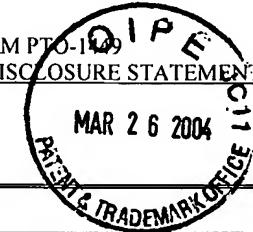
	AK	2	Eccleston <i>et al.</i> , "Expression of Lauroyl-Acyl Carrier Protein Thioesterase in <i>Brassica napus</i> Seeds Induces Pathways for Both Fatty Acid Oxidation and Biosynthesis and Implies a Set Point for Triacylglycerol Accumulation", <i>The Plant Cell</i> , 10:613-621 (1998)
	AL	2	Fuhrmann <i>et al.</i> , "Factors Controlling Medium-Chain Fatty Acid Synthesis in Plastids from Maturing <i>Cuphea</i> Embryos", <i>Z. Naturforsch</i> , 48c:616-622 (1993)
	AM	2	Harwood, "Fatty Acid Metabolism", <i>Ann. Rev. Plant Physiol. Plant Mol. Biol.</i> , 39:101-138 (1988)
	AN	2	Hawkins <i>et al.</i> , "Characterization of acyl-ACP Thioesterases of Mangosteen ( <i>Garcinia mangostana</i> ) Seed and High Levels of Stearate Production in Transgenic Canola", <i>The Plant Journal</i> , 13(6):743-752 (1998)
	AO	2	International Search Report, PCT/US01/23369 dated September 25, 2002 (4 pages)
	AP	2	Jaworski <i>et al.</i> , "A Cerulenin Insensitive Short Chain 3-Ketoacyl-Acyl Carrier Protein Synthase in <i>Spinacia oleracea</i> Leaves", <i>Plant Physiology</i> , 90:41-44 (1989)

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FORM PTO-149  
INFORMATION DISCLOSURE STATEMENT

MAR 26 2004



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16518.134

APPLICATION NO.

10/735,242

APPLICANTS

Katayoon DEHESH

FILING DATE

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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA3						
	AB3						
	AC3						
	AD3						
	AE3						

## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AF3	00/07433	02/2000	PCT			<input checked="" type="checkbox"/> Yes No
	AG3	00/75343	12/2000	PCT			<input checked="" type="checkbox"/> Yes No
	AH3	01/29238	04/2001	PCT			<input checked="" type="checkbox"/> (abstract only) Yes No
	AI3	03/072784	09/2003	PCT			<input checked="" type="checkbox"/> Yes No
	AJ3						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AK	3	Kaneko <i>et al.</i> , Database EMBL, Accession No. D90905 (XP002213167) (1996)
	AL	3	Kaneko <i>et al.</i> , "Sequence Analysis of the Genome of the Unicellular Cyanobacterium <i>Synechocystis sp.</i> Strain PCC6803 II. Sequence Determination of the Entire Genome and Assignment of Potential Protein-coding Regions", <i>DNA Research</i> , 3:109-136 (1996)
	AM	3	Kauppinen, "Structure and Expression of the Kas12 Gene Encoding a $\beta$ -Ketoacyl-Acyl Carrier Protein Synthase Isozyme from Barley", <i>The Journal of Biological Chemistry</i> , 267(33):23999-24006 (1992)
	AN	3	Leonard <i>et al.</i> , "A Cuphea $\beta$ -Ketoacyl-ACP Synthase Shifts the Synthesis of Fatty Acids towards Shorter Chains in <i>Arabidopsis</i> Seeds Expressing Cuphea FatB Thioesterases", <i>The Plant Journal</i> 13(5):621-628 (1998)
	AO	3	Martini, "Modification of Fatty Acid Composition in the Storage Oil of Transgenic Rapeseed", <i>Biological Chemistry Hoppe-Seyler</i> , vol. 376, pp. S55 (1995)
		3	McKeon <i>et al.</i> , "Purification and Characterization of the Stearoyl-Acyl Carrier Protein Desaturase and the Acyl-Acyl Carrier Protein Thioesterase from Maturing Seeds of Safflower", <i>The Journal of Biological Chemistry</i> , 257(20):12141-12147 (1982)

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FORM PTO-1449  
INFORMATION DISCLOSURE STATEMENT

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16518.134	10/735,242
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## U.S. PATENT DOCUMENTS

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	AA4						
	AB4						
	AC4						
	AD4						
	AE4						

## FOREIGN PATENT DOCUMENTS

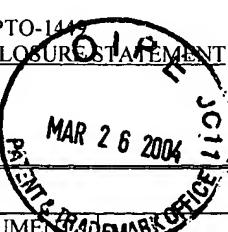
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AF4						Yes No
	AG4						Yes No
	AH4						Yes No
	AI4						Yes No
	AJ4						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AK	4	Ohlrogge, "Design of New Plant Products: Engineering of Fatty Acid Metabolism", <i>Plant Physiol.</i> , 104:821-826 (1994)
	AL	4	Post-Beittenmiller <i>et al.</i> , "In vivo Pools of Free and Acylated Acyl Carrier Proteins in Spinach", <i>The Journal of Biological Chemistry</i> , 266(3):1858-1865 (1991)
	AM	4	Radke <i>et al.</i> , "Transformation of <i>Brassica napus</i> L. Using <i>Agrobacterium tumefaciens</i> : Developmentally Regulated Expression of a Reintroduced Napin Gene", <i>Theor. Appl. Genet.</i> 75:685-694 (1988)
	AN	4	Schuch <i>et al.</i> , "Medium-chain acyl-ACP Thioesterase is not the Exclusive Enzyme Responsible for Early Chain-Length Termination in Medium-Chain Fatty Acid Synthesis", <i>Grasas y Aceites</i> , vol. 44, Fasc 2, pp. 126-128 (1993)
	AO	4	Shimakata <i>et al.</i> , "Isolation and Function of Spinach Leaf $\beta$ -Ketoacyl-(Acyl-Carrier-Protein) Synthases", <i>Proceedings of National Academy of Science, USA</i> , 79:5808-5812 (1982)
	AP	4	Siggard-Andersen <i>et al.</i> , "The fabJ-Encoded $\beta$ -Ketoacyl-(Acyl Carrier Protein) Synthase IV from <i>Escherichia coli</i> is Sensitive to Cerulenin and Specific for Short -Chain Substrates", <i>Proc. Natl. Acad. Sci., USA</i> , 91:11027-11031 (1994)

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FORM PTO-1442 INFORMATION DISCLOSURE STATEMENT 				ATTY. DOCKET NO.	APPLICATION NO.		
				16518.134	10/735,242		
				APPLICANTS			
				Katayoon DEHESH			
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U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE	
	AA5						
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FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION	
	AF5					Yes No	
	AG5					Yes No	
	AH5					Yes No	
	AI5					Yes No	
	AJ5					Yes No	
OTHER (Including Author, Title, Date, Pertinent Pages, etc.)							
	AK	5	Slabaugh <i>et al.</i> , "Condensing Enzymes from <i>Cuphea wrightii</i> Associated with Medium Chain Fatty Acid Biosynthesis", <i>The Plant Journal</i> , 13(5):611-620 (1998)				
	AL	5	Slabaugh <i>et al.</i> , GenEMBL Sequence Accession No. U67317 (1996)				
	AM	5	Slabaugh <i>et al.</i> , "cDNA Clones Encoding $\beta$ -Ketoacyl-Acyl Carrier Protein Synthase III from <i>Cuphea wrightii</i> ", <i>Plant Physiology</i> , 108:443-444 (1995)				
	AN	5	Tai <i>et al.</i> , "3-Ketoacyl-Acyl Carrier Protein Synthase III from Spinach ( <i>Spinacia oleracea</i> ) is not Similar to Other Condensing Enzymes of Fatty Acid Synthase", <i>Plant Physiology</i> , 103:1361-1367 (1993)				
	AO	5	Töpfer <i>et al.</i> , "Modification of Plant Lipid Synthesis", <i>Science</i> , 268:681-685 (1995)				
	AP	5	Tsay <i>et al.</i> , "Isolation and Characterization of the $\beta$ -Ketoacyl-Acyl Carrier Protein Synthase III Gene (fabH) from <i>Escherichia coli</i> K12", 267(10):6807-6814 (1992)				
EXAMINER				DATE CONSIDERED			
EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to Applicant.							

**FORM PTO-1449**  
**INFORMATION DISCLOSURE STATEMENT**

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16518.134	10/735,242
APPLICANTS	
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## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB-CLASS	FILING DATE
	AA6						
	AB6						
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## FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB-CLASS	TRANSLATION
	AF6						Yes No
	AG6						Yes No
	AH6						Yes No
	AI6						Yes No
	AJ6						Yes No

## OTHER (Including Author, Title, Date, Pertinent Pages, etc.)

	AK	6	Voelker <i>et al.</i> , "Genetic Engineering of a Quantitative Trait: Metabolic and Genetic Parameters Influencing the Accumulation of Laurate in Rapeseed", <i>The Plant Journal</i> , 9(2):229-241 (1996)
	AL	6	Voelker <i>et al.</i> , "Plant Acyl-ACP Thioesterases: Chain-Length Determining Enzymes in Plant Fatty Acid Biosynthesis", <i>Genetic Engineering</i> , 18:111-133 (1996)
	AM	6	Voelker <i>et al.</i> , "Fatty Acid Biosynthesis Redirected to Medium-Chains in Transgenic Oilseed Plants", <i>Science</i> , 257:72-74 (1992)
	AN	6	Walsh <i>et al.</i> , "The Short Chain Condensing Enzyme has a Widespread Occurrence in the Fatty Acid Synthetases from Higher Plants", <i>Phytochemistry</i> , 29(12):3797-3799 (1990)
	AO	6	Winter <i>et al.</i> , "Decarboxylation of Malonyl-(Acyl Carrier Protein) by 3-Oxoacyl-(Acyl Carrier Protein) Synthases in Plant Fatty Acid Biosynthesis", <i>Biochem. J.</i> , 321:313-318 (1997)
	AP	6	

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